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09/626,400	07/26/2000	Na Li	5019.4	8165

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EXAMINER

EUGENE, WANDA

ART UNIT PAPER NUMBER

2666

DATE MAILED: 01/26/2004

8

Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.

09/626,400

Applicant(s)

LI ET AL.

Examiner

Wanda Eugene

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2666

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on 26 July 2000.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1-36 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-3, 7, 13- 16 and 24 is/are rejected.
- 7) ☐ Claim(s) 4-6, 8-12, 17-23 and 25-36 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

## Priority under 35 U.S.C. §§ 119 and 120

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 13) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.
- a) ☐ The translation of the foreign language provisional application has been received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

## Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other:

## DETAILED ACTION

### *Claim Rejections - 35 USC § 102*

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

Regarding claim 1 Charvillat discloses a lender class of service for each active connection from which resources may be reallocated to the active connection (**a pool of bandwidth resource to reserve a portion of the free bandwidth**, col. 2 line 24); periodically comparing the resource usage of an active connection to an upper threshold and a lower threshold (**flow enforcement control is performed on every user cell, in regards to a predefined threshold** 105 fig.1, col. 4 line 2, col. 7 lines 8-11); borrowing resources from the lender class of service for the active connection in response to the current usage exceeding the upper threshold; and returning resources to the lender class of service from the active connection in response to the current usage being less than the lower threshold (**a buffer allowing user terminal to be transmitted toward a destination when contract parameters are not violated and storing in the buffer when contract parameter values are violated** col. 1 line 51-56).

Regarding claims 2, 3 and 14 Charvillat discloses receiving incoming data on the active connection (**each network node comprises resource allocation means which is responsive to a connection request from a user terminal** col. 2 lines 9-15) and receiving an incoming cell of data on the active connection (**user cells entering UPC are policed and transmitted** col. 4

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lines 9-14) respectively. Charvillat further discloses, borrowing and returning resources comprise borrowing and returning bandwidths (**the temporary allocated pool bandwidth is returned to the pool resource for other users** col. 2 lines 34-41)

Regarding claim 24, Fan et al. discloses assigning a total weight to each class of services; assigning a weight to each of a plurality of data transmitting active connections in each class of services (**weights can be assigned on a per class basis or dynamically** col. 6 lines 13-15); determining a lender class of service for each active connection from which weighting may be reallocated to the active connection (**a pool of excess bandwidth is made available to streams which transmit in excess of their minimum rates** col. 8 line 14); periodically comparing the resource usage of an active connection to an upper threshold and a lower threshold (**when the queue level falls below  $Q_1$ , the DRC controller reverts back; when a second stage queue length exceeds a stop threshold  $Q_2 > Q_1$ , a stop signal is transmitted** col. 14 lines 41-58); borrowing additional weighting from the lender class of service for the active connection in response to the current usage exceeding the upper threshold; and returning borrowed weighting to the lender class of service from the active connection in response to the current usage being less than the lower threshold (**streams further away from their QoS targets receive greater shares of the excess bandwidth and if the measured QoS streams exceeds the target QoS than take bandwidth away from the stream and make it available to other streams which are in greater need of the bandwidth** col. 21 line 13-19).

***Claim Rejections - 35 USC § 103***

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claim 7 rejected under 35 U.S.C. 103(a) as being unpatentable over Charvillat in view of Ramamurthy et al. (U.S. 6,046,981).

Charvillat discloses a pool of bandwidth resources utilizing flow control to allocate free bandwidth as discussed in claim 1. Charvillat does not disclose expressly a means for determining available resources of the lender class of service; and proceed to borrowing if the available resources are sufficient. Ramamurthy et al. discloses a connection request is accepted if this additional bandwidth is available in the free pool 230 (fig. 2) col. 5 lines 13-16. At the time of the invention it would have been obvious to a person of ordinary skill in the art to modify Charvillat method of bandwidth allocation to include a means of determining if the requested resources are available at the time of the request as suggested by Ramamurthy et al. The motivation for doing so would have been to ensure that there are ample resources available to meet the needs of the requesting class.

4. Claim 13 rejected under 35 U.S.C. 103(a) as being unpatentable over Charvillat in view of Wu (U.S. 6,477,167)

Charvillat teaches the claimed invention except for first scheduling resources using a weighted round robin method. Wu teaches that bandwidth is shared within a group of real time variable bit rate connections based on a weighted round robin process. It would have been obvious to

one having ordinary skill in the art at the time the invention was made to utilize weighted round robin process as taught by Wu, since Wu states at column 5 lines 40-48 that such a modification would produce a work conservation system with no bandwidth wasted as long as there is un-transmitted real time variable bit rate.

5. Claim 16 rejected under 35 U.S.C. 103(a) as being unpatentable over Charvillat in view of Ash et al. (U.S. 5,130,982).

Charvillat discloses a first data structure storing resource allocation weighting data associated with each class of services (**UPC device includes a shift register for receiving ATM cells from user terminal** col. 4 lines 30); a second data structure storing resource allocation weighting data associated with each active connection in each class of services (**controller 200** fig. 2); wherein the second data structure includes: a class identifier specifying a lender class of services from which resource may be borrowed (**the VCI/VPI of the cells are stored in register R2** col. 4 lines 38-39); an upper threshold indicative of when resource borrowing action for this active connection should be initiated; a lower threshold indicative of when resource returning action for this active connection should be initiated (**user cells transmitted at a rate violating predefined contract parameters and those not violating the contract parameters are carried through the data line** col. 4 lines 10-14); Charvillat does not disclose expressly a sequence of data associated with each resource borrowing action of resources that have not been returned. Ash et al. discloses borrowing node sends out message containing identity of call, node, and channel and of class of service (col. 7 lines 1-40). At the time of the invention it would have been obvious to a person of ordinary skill in the art to modify Charvillat to include Ash in order to identify the borrowed bandwidth from the shared pool. Therefore, it would have been obvious to combine Ash with Charvillat for the benefit of identifying the channels that have yet to be returned to the pool, to obtain the invention as specified in claim 16.

***Allowable Subject Matter***

6. Claims 4-6, 8-12, 15, 17-23 and 25-36 objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

***Conclusion***

7. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.


- a. Hauser et al. (U.S. 5,996,019), Network link access scheduling using a plurality of prioritized lists containing queue identifiers
- b. McKinnon, III et al. ( U.S. 2001/0038640) Computerized method for allocating access across a shared communication medium
- c. Balachaandran (U.S. 6,577,621) System and method for providing high-speed local telecommunication access
- d. Manning et al. (U. S 5,956,342) Priority arbitration for point-to-point and multipoint transmission
- e. Yin et al. (U.S. 6,442,138), Method and apparatus for controlling admission of connection request

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Wanda Eugene whose telephone number is 703-305-8978. The examiner can normally be reached on M-F 7am-4pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ricky Q-Ngo can be reached on 703-305-4798. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9314.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-3900.

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RICKY NGO  
PRIMARY EXAMINER  
RICKY NGO